UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF TEXAS
(Corpus Christi Division)

In re	§	**Case No. 05-21207**
	§	
ASARCO, LLC, et al	§	**Chapter 11**
	§	
Debtors	§	**Jointly Administered**
	§	

Expert Name: **Robert E. Trost, Ph.D.**
Retention on behalf of: **U.S. Department of Justice**

PROFFER OF DIRECT TESTIMONY OF ROBERT E. TROST, PH.D.

Introduction:

The following information is a true and accurate statement of my testimony if I were called as a witness in open court in this case:

A. Brief Summary of Opinions

1. I am the Pacific Flyway Representative for the U.S. Fish and Wildlife Service. In this matter, I will testify regarding a portion of the Natural Resource Damage Assessment ("NRDA") conducted in the Coeur d'Alene River Basin in northern Idaho. I will testify regarding the procedures followed to assess damages for injury to tundra swans, a migratory bird within the trusteeship of the United States, and its supporting habitat. Based on the NRDA, damages for injuries to natural resources in the Coeur d'Alene River Basin ("the Basin") total at least $333.4 million, not including the costs incurred by the natural resource trustees to assess those injuries. The portion of that attributable to the loss of tundra swans and their habitats, in 2008$, is $209.6 million.

B. Expert Qualifications

2. **Education**. I received a Bachelor of Science in Biology from Pennsylvania State University, and a Masters of Science in Wildlife Ecology from the University of Wisconsin in Wildlife Ecology. I completed a Ph.D. in Wildlife Ecology and Zoology from the University of Wisconsin, and have completed a Postdoctorate from Cornell University. I have served as an associate professor and unit leader in the Department of Aquaculture, Fisheries, and Wildlife at Clemson University.

3. **Professional Experience.** I have been employed with the U.S. Fish and Wildlife Service's Division of Migratory Bird Management as a population ecologist for more than 20

years. I currently serve as the Pacific Flyway Representative for the U.S. Fish and Wildlife Service. In that role, I contribute to the population monitoring and assessment of migratory bird populations throughout the Pacific Flyway and the North American continent. I also help to develop and implement national strategies for the management of migratory birds with an emphasis on determining appropriate levels of take of migratory game birds, and the determination of waterfowl population status and trends.

C. Statement of Opinions

4. Tundra swans have been dying as a result of environmental lead contamination in wetland habitats in the lower Coeur d'Alene Basin since at least 1929, and continue to be injured today. In 2004, I was asked by the U.S. Department of Justice to calculate the amount of natural resource damages due to the United States as a result of the loss of tundra swans and their supporting ecosystems. Those costs were calculated in two ways. First, we determined the costs of restoring and constructing wetland habitat in the contaminated areas of the Coeur d'Alene Basin. Second, to the extent possible, we determined the cost of securing easements on the nesting grounds of the tundra swans in order to preserve habitat and reduce harvest. My opinions and calculations were outlined in the *Tundra Swan (Cygnus columbianus) Injury Assessment, Lower Coeur d'Alene Basin* (August 23, 2004). USEXRPT000568-000655. In reaching my opinions, I relied on the statistical design and analysis of Dr. John Kern of Kern Statistical Services, and the habitat restoration plan developed with Ridolfi Engineers. Both reports were part of my 2004 damages report.

5. To determine the amount of restoration required to compensate the United States, we employed a resource equivalency analysis. This analysis is similar to the analyses conducted

by the United States to determine the amount of restoration necessary to compensate the United States for contaminated waters and federal lands in the Basin. First, the number of tundra swans lost is converted to "swan-years" lost. Second, we calculated the expected benefits to tundra swans from restoration actions in contaminated areas in the lower Coeur d'Alene Basin, and from conversion of some agricultural lands to feeding habitats. Third, the benefits of maintaining key nesting areas in Alaska – where many tundra swans of the Pacific Flyway nest – were determined. Finally, the costs of this suite of possible actions was determined.

6. We first calculated the amount of past – beginning in 1981 – and future injury to tundra swans. Mortality due to environmental lead contamination was estimated based on studies conducted in the lower Basin. Searchers in randomly selected areas recorded the number of swan deaths which could be attributed to lead poisoning. The number of tundra swans collected was then adjusted to account for searcher inefficiencies and for predation of wounded and moribund animals. We determined that between 1981 and 2004, a total of 40,000 swan-years were lost. We then estimated that 12,000 to 32,000 swan-years would be lost in the future.

7. The amount of injury calculated is necessarily conservative for a number of reasons. First, while there are substantial sub-lethal injuries suffered by waterfowl throughout the Basin, we based our injury quantification only on the number of animals killed. Second, the estimates of mortality included only those animals' first generation progeny, even though multiple generations would often be lost. Third, in our calculations, we excluded all dead tundra swans that were incidentally found. In other words, we used only those tundra swans discovered by our searchers in certain wetland areas and at certain times, even though the actual number of poisoned swans was significantly higher. Fourth, our analysis does not include any tundra swans

that are lethally poisoned in the Basin, but manage to fly off and die elsewhere. Thus, the number of swan-years lost to the public is likely to be substantially higher than we estimated.

8. The natural resource trustees determined that the appropriate way to compensate the public for the past and ongoing injuries to tundra swans and swan habitat was a combination of restoration actions to be carried out in the contaminated swan feeding habitats in the Basin and the preservation of nesting habitats. The first of these actions is intended to prevent the loss of tundra swans – and their progeny – as a result of environmental lead poisoning. The second action is intended to increase production of tundra swans, as the breeding grounds are the only area where production occurs.

9. In calculating the benefits of restoration actions in the lower Basin, I assumed that the actions would reduce exposure of Tundra Swans to lead contamination in direct proportion to the amount of wetland habitat restored. In other words, the number of tundra swans that would have been exposed to a contaminated wetland – and the number that would have been died as a result – would not be exposed after the restoration action is completed. Based on the Interim Record of Decision, EPA intended to remediate approximately 22% of the contaminated feeding habitats. We calculated the cost of restoring of the remaining feeding habitats at approximately $169,000,000 in 2004 dollars.

10. In addition to restoring contaminated wetlands, we also calculated the cost of converting certain agricultural lands in the lower Basin to wetlands. As many as 1,000 acres of agricultural lands in the Basin are suitable for this type of conversion. Conversion of uncontaminated agricultural lands is less expensive than restoration of wetlands. The total cost for conversion of 1,000 acres of land is approximately $9,000,000.

11. We also identified the opportunity to purchase a conservation easement for 37,600 acres of habitat on the Yukon-Kuskokwim delta in Alaska ("Y-K delta"). This area would support approximately 547 Tundra Swans. Land use practices are expected to limit the number of Tundra Swans that can nest in the area. For the purposes of our calculations, we assumed that future land use practices would reduce the amount of nesting area by 80%. The cost of obtaining an easement on these lands is estimated to be $2,900,000, and an additional $40,000 per year to manage the easement. To calculate the acreages and cost, I consulted with Doug Staller, the Deputy Refuge Manager for the Yukon Delta National Wildlife Refuge.

12. I have reviewed the opinions submitted by Mr. Richard White in this matter. His primary criticism of the approach taken to address injuries to Tundra Swans regards the selection of restoration and agricultural conversion actions to compensate the public. Specifically, he opines that the purchase of conservation easements on the Y-K Delta is a more "cost effective" option for recovering lost swan-years. Mr. White suggests that simply expanding the scope and size of the easement will make the United States whole. Mr. White's proposal cannot be implemented. In fact, the easement that has been proposed in the damages calculations constitutes the entire privately-owned primary nesting area of this population of Tundra Swans. The remainder of the nesting habitat is already part of the United States Refuge system. We are aware of no additional areas where an easement could reasonably be expected to be obtained that would benefit nesting Tundra Swans from this population.

13. In addition, Mr. White opines that the damages calculations include some minor mathematical discrepancies. I have reviewed those and found only one minor error in calculation. The error resulted in a change in the costs of obtaining nesting ground easements by

less than $200,000 in 2004$.

14. I have also reviewed the expert opinion of Dr. William Desvousges, the expert witness on behalf of Asarco, Inc. Dr. Desvousges offers the same opinion as Mr. White regarding the expansion of nesting ground easements on the Y-K Delta in Alaska. As stated previously, we are aware of no additional areas where an easement could reasonably be expected to be obtained that would benefit nesting Tundra Swans from this population.

C. Exhibits to be Introduced in Support of Direct Testimony

Trost, R.E., Kern, J.W., *Tundra Swan (Cygnus columbianus) Injury Assessment, Lower Coeur d'Alene Basin* (August 23, 2004).

Expert Report of Robert E. Trost, PhD, ASARCO LLC Chapter 11 Bankruptcy (June 15, 2007).

Rebuttal Expert Report, Robert E. Trost (August 10, 2007)

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct. Executed this 2nd day of October, 2007 at 2:30 pm.

Robert E. Trost

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